Activity: **6.3**
Design Physical Model and Data Base Structure

Responsibility: Project Team

Description: The physical model is a description of the dynamics, data transformation, and data storage requirements of the software product. The physical model maps the logical model created during the Functional Design Stage to a specific technical reality. Care must be taken to retain in the physical implementation all of the capabilities inherent in the logical model.

The physical model frequently differs from the logical model in the following areas.

- Constraints imposed by the data base management system - The logical data model may have different implementations in the selected data base management system.
- Performance - Data redundancies, indices, and data structure changes may have to be introduced into the physical model to improve performance.
- Distributed processing - Possible network and multiple production hardware configurations may cause changes to the physical data model.

Designing the data base structure converts the data requirements into a description of the master and transient files needed to implement the requirements. If the software product will include a data base, design the data base in conjunction with the following data base management features.

- Report writer and file processing capabilities
- Online query processing to retrieve data
- Automated data dictionary systems

Work Product: Document the physical model for incorporation into the System Design Document. Review the contents of the data dictionary entries and update to complete information on data elements, entities, files, physical characteristics, and data conversion requirements. Place a copy of all physical model and data base structure records in the Project File.

Review Process: Schedule structured walkthroughs to verify that the physical model and data dictionary are correct and complete.

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